

### **REMARKS**

Claims 53, 64 and 66 are amended. Claims 53-55 and 60-69 are pending in the application.

Claim 64 stands objected to under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to make or use the invention. The Examiner states that the specification fails to define standards or measurements of determining the recited "uniformly" or the recited "fine". Claim 64 stands additionally rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. The Examiner states that claim 64 is indefinite because the recited term "as" renders the claim unclear. Without admission as to the propriety of the Examiner's 112 rejections of claim 64, applicant has amended claim 64 to recite one or more other elements being elemental precipitates in the alloy microstructure. As amended, claim 64 no longer recites the terms "uniformly", "fine" or "as". Accordingly, applicant respectfully requests withdrawal of the § 112 rejections of claim 64 in the Examiner's next action.

Claims 53-55, 60, 62 and 64-69 stand rejected under 35 U.S.C. § 103 as being unpatentable over Dunlop, U.S. Patent No. 5,590,389. The Examiner is reminded by direction to MPEP § 2143 that a proper obviousness rejection has the following three requirements: 1) there must be some suggestion or motivation to modify or combine reference teachings; 2) there must be a reasonable expectation of success; and 3) the combined references must teach or suggest all of the claim limitations. Claims 53-55, 60, 62 and 64-69 are allowable over Dunlop for at least the reason that Dunlop fails to disclose

or suggest each and every limitation in any of those claims.

As amended, independent claim 53 recites a target consisting essentially of an alloy of copper and a total concentration of one or more other elements of from less than 1.0 at% to 0.001 at%, the one or more other elements selected from the group consisting of Mo, Tc, Re, and Tl. The amendment to claims 53 is supported by the specification at, for example, page 9, lines 8-19 and the tables at page 10.

Dunlop discloses formation of targets comprising a metal which can include copper and which can also include up to 10% of chromium, titanium, tungsten, tantalum, molybdenum or alloys thereof (col. 4, ll. 22-25). The range of additional elements disclosed by Dunlop is broad relative to the recited less than 1% to 0.001% total concentration of elements other than copper. As indicated in applicant's specification at, for example, page 12, line 12 through page 13, line 2 and page 11, lines 5-13, the recited amount of specific elements can result in a clean copper matrix with a small amount of elemental precipitate resulting in little copper lattice distortion and leaving the electrical resistivity very close to pure copper. Accordingly, the recited amount of specified elements confers distinct advantage to the alloy which is not disclosed or suggested by Dunlop. Accordingly, independent claim 53 is not rendered obvious by Dunlop and is allowable over this reference.

Dependent claims 54-55, 60, 62 and 64-65 are allowable over Dunlop for at least the reason that they depend from allowable base claim 53.

As amended, independent claim 66 recites a physical vapor deposition target consisting essentially of a copper alloy having a purity of 99.9998% with a total concentration of other elements of from less than 1.0 at% to 0.001at%. Independent claim

66 is allowable over Dunlop for at least the reasons similar to those discussed above with respect to independent claim 53.

Dependent claims 67-69 are allowable over Dunlop for at least the reason that they depend from allowable base claim 66.

Claims 61 and 63 stand rejected under 35 U.S.C. § 103 as being unpatentable over Dunlop in view of Weber, U.S. Patent No. 4,786,469 and JP 49007777 (JP '777). As discussed above, independent claim 53 is not rendered obvious by Dunlop. Weber discloses copper based metals comprising additional grain refining elements and discloses that the base metal must contain a minimum of at least 4 additional elements, one of which must be either titanium or zirconium (col. 2, ll. 3-23). Weber does not teach or suggest the claim 53 recited alloy having a total concentration of other elements of from 0.001 at% to 1.0 at%. Further, Weber does not disclose or suggest the recited physical vapor deposition target consisting essentially of the recited alloy.

JP '777 discloses a copper alloy containing thallium. JP '777 does not disclose or suggest the recited alloy of copper and total concentration of other elements from less than 1.0 at% to 0.001 at%. Further, JP '777 does not teach or suggest the recited physical vapor deposition target consisting essentially of the recited alloy. As combined, Dunlop, Weber and Sakamoto do not teach or suggest the claim 53 recited physical vapor deposition target consisting essentially of an alloy of copper containing a total concentration of other elements from less than 1.0 at% to 0.001 at% being selected from the group consisting of Mo, Tc, Re and Tl. Accordingly, independent claim 53 is not rendered obvious by the combination of Dunlop, Weber and JP '777. Dependent claims 61 and 63 are allowable over the cited combination of Dunlop, Weber and JP '777 for at least

the reason that they depend from allowable base claim 53.

For the reasons discussed above claims 53-55 and 60-69 are allowable. Accordingly, applicant respectfully requests formal allowance of pending claims 53-55 and 60-69 in the Examiner's next action.

Respectfully submitted,

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Appl. No. 09/783,835

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Assignee..... Honeywell International Inc.  
Group Art Unit..... 1742  
Examiner ..... Ip, Sikyin  
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Title: Physical Vapor Deposition Target

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VERSION WITH MARKINGS TO SHOW CHANGES MADE ACCOMPANYING  
RESPONSE TO DECEMBER 5, 2002 FINAL OFFICE ACTION

In the Claims

The claims have been amended as follows. Underlines indicate insertions and ~~strikeouts~~ indicate deletions.

53. (Amended) A physical vapor deposition target consisting essentially of ~~comprising~~ an alloy of copper and one or more other elements, the one or more other elements being present in the alloy at a total concentration from less than 1.0 at% to 0.001 at% and being selected from the group consisting of Mo, Tc, Re, and Tl.

64. (Amended) The physical vapor deposition target of claim 53 wherein the one or more other elements are ~~present in the alloy as uniformly distributed fine~~ elemental precipitates in the alloy microstructure.

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66. (Amended) A physical vapor deposition target consisting essentially of comprising a copper alloy, the alloy consisting of copper having a purity of 99.9998% alloyed with a total concentration of other elements of from less than 1.0 at% to 0.001 at%, the other elements being selected from the group consisting of Tc, Ti, Re, and Mo.

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